

Amendments to the Claims: This listing of claims will replace all prior versions, and listings, of claims in the application

Listing of Claims

1. (Currently Amended) A planar antenna, comprising:

a dielectric substrate;
an almost square radiating element formed on one main surface of said dielectric substrate, said radiating element having notched portions at two corners opposing in one diagonal direction; and

a ground conductor formed on said one main surface, said ground conductor having a square opening portion at a center portion thereof and a square outer peripheral shape;

wherein said radiating element is placed inside the opening portion of said ground conductor with a gap of a predetermined width being provided with respect to said ground conductor, and-

said ground conductor continuously surrounds said radiating element.

2. (Original) The planar antenna according to claim 1, wherein said dielectric substrate is a window glass of a vehicle, and said radiating element and ground conductor are formed on an inner surface of said window glass.

3. (Original) The planar antenna according to claim 1, wherein said planar antenna receives a circularly polarized wave of a microwave band.

4. (Original) A method for designing a planar antenna of claim 1, wherein a diagonal line length in the other diagonal direction where no notched portions of said radiating element are provided is deemed as A, the diagonal line length in said one diagonal direction as B, a width of said gap between said radiating element and said ground conductor as G, and a length of one edge of the square peripheral shape of said ground conductor as W, said method comprising the steps of:

deciding said diagonal line length A so that the planar antenna resonates with a predetermined frequency,

deciding said diagonal line length B based on a first linear function relationship between a resonance frequency of the planar antenna and a diagonal line length ratio B/A,

deciding said gap width G based on a second linear function relationship between said diagonal line length ratio B/A and a ratio G/A of said A to said G, and

deciding said length W of one edge of the square peripheral shape based on an exponential function relationship between a gradient coefficient of a linear expression representing said second linear function relationship and a ratio W/A of said A to said W.

5. (Original) The method according to claim 4, wherein said dielectric substrate is a window glass of a vehicle and said radiating element and ground conductor are formed on an inner surface of said window glass.

6. (Original) The method according to claims 4 or 5, wherein said planar antenna receives a circularly polarized wave of a microwave band.